

BEFORE THE PUBLIC SERVICE COMMISSION  
OF THE STATE OF DELAWARE

IN THE MATTER OF THE CONSIDERATION       )  
OF RULES, STANDARDS, AND INDICES       )  
TO ENSURE RELIABLE ELECTRICAL       )     PSC REGULATION DOCKET NO. 50  
SERVICE BY ELECTRIC DISTRIBUTION       )  
COMPANIES (OPENED SEPTEMBER 26, 2000)   )

**ORDER NO. 6217**

This 22nd day of July, 2003, the Commission determines and Orders the following:

1. In PSC Order No 5704 (April 24, 2001), this Commission proposed to adopt "Electric Service Reliability and Quality Standards" to establish additional reliability standards for Commission-regulated electric utilities and electric distribution companies.<sup>1</sup> In that Order, the Commission directed the publication of these proposed regulations and assigned to a Hearing Examiner the tasks of reviewing comments, conducting public hearings, and preparing a Report with his recommendations concerning the proposed regulations. The proposed regulations were published in 4 DE Reg. 1929 (June 1, 2001).

2. The Commission, in Order No. 5704, also established a procedural schedule that contemplated expedited consideration of the

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<sup>1</sup>The original formulation of these regulations will be referred to as the "proposed regulations." Staff's later revisions will be called the "revised proposed regulations."

proposed regulations. However, later, in PSC Order No. 5766 (July 24, 2001), the Commission (acting on Staff's recommendation) withdrew that earlier schedule in light of the then-pending proceedings in PSC Dckt. No. 01-194 involving the merger of Delmarva Power & Light Company ("DP&L").

3. Several entities filed comments in response to the originally proposed regulations, including the Division of the Public Advocate, DP&L, the Delaware Electric Cooperative, Inc., and the Delaware Energy Users' Group, a group of industrial customers located within DP&L's service territory. As a result of extensive discussions among the participants, a consensus was reached that resulted in the Staff offering revisions to the original proposed regulations. After circulation among the participants, these revised proposed regulations were submitted to the Hearing Examiner on June 6, 2003. No participant filed comments with the Hearing Examiner opposing Staff's revised proposed regulations.

4. In a June 27, 2003 letter, the Hearing Examiner transmitted the revised proposed regulations to the Executive Director and all participants with his recommendation that the Commission now embrace Staff's revised rules as proposed regulations to be published and considered in accord with rule-making procedures in the Administrative Procedures Act ("APA"). 29 Del. C. §§ 1132-33 & 10115-10118. The Hearing Examiner indicated that the revised proposed regulations should be subject to publication and another round of comment and hearing because Staff's revisions reflected "substantive changes in the proposal as a result of public comments, evidence, and information." 29 Del. C. § 10118(c) (2002 Supp.). The Hearing Examiner also commented that he considered Staff's revisions to be reasonable,

particularly since the revised regulations reflect a consensus reached by the participants after extensive negotiations, numerous comments, and a contested hearing held on April 28, 2003. The Hearing Examiner suggested that publication of revised proposed regulations at this time - prior to him submitting a Report based on the present administrative record - would avoid additional delay and ultimately expedite the consideration of this matter.

5. The Commission agrees that it is appropriate for it to now propose to adopt Staff's revised proposed regulations and have those revised regulations published for comment and hearing under the APA's rule-making procedures. These revised proposed regulations (Exhibit A to this Order) will supersede the proposed regulations previously proffered in PSC Order No. 5704. In following this course, the Commission relies on the Staff's summary of the content of the revised proposed rules, as set forth in the Supplemental Comments filed by Staff on June 6, 2003, as well as the Hearing Examiner's recommendation that we should now proceed to publication, comments, and a hearing on Staff's revised proposed rules in order to allow for Commission consideration at the earliest possible time.

Now, therefore, **IT IS ORDERED:**

1. That the regulations entitled "Electric Service Reliability and Quality Standards" proposed for adoption in PSC Order No. 5704 (April 24, 2001), and published in 4 DE Register 1129 (June 1, 2001) are hereby withdrawn.

2. That, pursuant to 26 Del. C. §§ 209 & 1002(a)(1), the Commission hereby, under the provisions of 29 Del. C. §§ 10115-10118,

proposes to adopt for electric public utilities and electric distribution companies the rules and regulations entitled "Electric Service Reliability and Quality Standards" as set forth in Exhibit A to this Order.

3. That the Secretary shall promptly forward a copy of this Order, with the proposed regulations set forth in Exhibit A, to the Delaware Registrar for publication in the next appropriate edition of the Delaware Register of Regulations. In addition, the Secretary shall also promptly forward to the Delaware Registrar a copy of the public notice attached as Exhibit B to this Order for similar publication in the next appropriate Delaware Register of Regulations. Third, the Secretary shall, before September 1, 2003, cause the public notice set forth in Exhibit B to be published in the legal classified sections of The News Journal and the Delaware State News newspapers, in two column format outlined in black. Fourth, the Secretary shall send, by United States mail, a copy of this Order, with attached exhibits, to each person or entity that has previously filed comments or otherwise participated in this docket. Fifth, the Secretary shall send a copy of this Order, with attached exhibits, by United States mail, to the Division of the Public Advocate and each person or entity that has previously requested advance notice of this Commission's regulation-making proceedings. Finally, the Secretary shall post a copy of this Order, with all exhibits, on the Commission's Internet website under an appropriate heading indicating that the Commission is proposing to adopt additional reliability regulations and solicits comments on its proposal.

4. That the previously designated Hearing Examiner, Robert P. Haynes, shall conduct a public hearing on the proposed regulations on September 22, 2003. After such hearing and the close of the comment

5. The Commission reserves the jurisdiction and authority to enter such further Orders in this matter as may be deemed necessary or proper.

/s/ Arnetta McRae  
Chair

PSC Regulation Docket No. 50, Order No. 6217 Cont'd.

Commissioner

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/s/ Karen J. Nickerson  
Secretary

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**E X H I B I T A**

**STATE OF DELAWARE**  
**Delaware Public Service Commission**

**Electric Service Reliability  
and Quality Standards**





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## **A. Purpose and Scope**

- 1) Reliable electric service is of great importance to the Delaware Public Service Commission (“Commission”), because it is an essential service to the citizens of Delaware. These regulations, in support of 26 Del. C., § 1002, set forth reliability standards and reporting requirements needed to assure the continued reliability and quality of electric service being delivered to Delaware customers and are applicable to all Delaware Electric Distribution Companies (“EDCs”).
- 2) Nothing in these regulations relieves any utility from compliance with any requirement set forth under any other regulation, statute or order. These regulations are in addition to those required under PSC Docket No. 58, Order No. 103, Regulations Governing Service Supplied by Electrical Utilities.
- 3) Each EDC shall maintain the reliability of its distribution services and shall implement procedures to require all electric suppliers to deliver energy to the EDC at locations and in amounts which are adequate to meet each electric supplier's obligations to its customers. 26 Del. C., § 1008.
- 4) These regulations require the maintenance and retention of reliability data and the reporting of reliability objectives, planned actions and projects, programs, load studies and actual resulting performance on an annual basis, including major events as specified in section K.
- 5) EDCs are responsible for maintaining the reliability of electric service to all their customers in the state of Delaware. Pursuant to this requirement, EDCs may be subject to penalties as described in Section M.
- 6) EDCs are encouraged to explore the use of proven state of the art technology, to promote cost effective electric service reliability improvements.

## **B. Definitions**

The following words and terms, as used in these regulations, shall have the following meanings, unless the context clearly indicates otherwise:

**“Acceptable reliability level”** is defined as the maximum acceptable limit of the System Average Interruption Frequency Index (“SAIFI”), the Customer Average Interruption Duration Index (“CAIDI”) and the Forced Outage Rate as specified in Section D.

**“ALM”** means Active Load Management in accordance with Article 1, Schedule 5.2 of PJM’s Reliability Assurance Agreement (RAA).

**“Availability”** means the measure of time a generating unit, transmission line, or other facility is capable of providing service, whether or not it actually is in service.

**“Beginning restoration”** includes the essential or required analysis of an interruption, the dispatching of an individual or crew to an affected area, and their arrival at the work site to begin the restoration process (normally inclusive of dispatch and response times).

**“Benchmark”** means the standard service measure of SAIFI, CAIDI and Forced Outage Rate as set forth in these regulations.

**“Capacity”** means the rated continuous load-carrying ability, expressed in megawatts (“MW”) or megavolt-amperes (“MVA”) of generation, transmission, or other electrical equipment.

**“Capacity Emergency Transfer Objective (‘CETO’)”** means the amount of megawatt capacity that an area or sub area must be able to import during localized capacity emergency conditions such that the probability of loss of load due to insufficient tie capability is not greater than one day in 10 years.

**“Capacity Emergency Transfer Limit (‘CETL’)”** means the amount of megawatts that can actually be imported into the area or sub area during localized capacity emergency conditions.

**“Constrained hours of operation”** means the hours of electric system operation during which time there are limits, transfer constraints or contingencies on the delivery system that require off-cost dispatch of generating facilities located within the PJM DPL Zone. In measuring compliance to standard, total constrained hours will exclude “major events” and forced generator outages.

**“Contingency”** means the unexpected failure or outage of a system component, such as a generator, transmission line, circuit breaker, switch, or other electrical element. A contingency may also include multiple components, which are related by situations leading to simultaneous component outages.

**“Corrective action”** means the maintenance, repair, or replacement of an EDC’s utility system components and structures to allow them to function at an acceptable level of reliability.

**“Corrective maintenance”** means the unplanned maintenance work required to restore delivery facilities to a normal operating condition that allows them to function at an acceptable level of reliability.

**“Customer Average Interruption Duration Index (‘CAIDI’)”** represents the average time in minutes required to restore service to those customers that experienced sustained interruptions during the reporting period. CAIDI is defined as follows:

$$\text{CAIDI} = \frac{\text{Sum of all Sustained Customer Interruption Durations per Reporting Period}}{\text{Total Number of Sustained Customer Interruptions per Reporting Period}}$$

**“Delivery Facilities”** means the EDC’s physical plant used to provide electric energy to Delaware retail customers, normally inclusive of distribution and transmission facilities.

**“Dispatch time”** is the elapsed time between receipt of a customer call and the dispatch of a service resource to address the customer’s issue as tracked by the OMS.

**“Distribution feeder” or “feeder”** means a three-phase set of conductors emanating from a substation circuit breaker serving customers in a defined local distribution area. This includes three-phase, two-phase and single-phase branches that are normally isolated at all endpoints.

**“Distribution facilities”** means electric facilities located in Delaware that are owned by a public utility that operate at voltages of 34,500 volts or below and that are used to deliver electricity to customers, up through and including the point of physical connection with electric facilities owned by the customer.

**“Electric Distribution Company” or “EDC”** means a public utility owning and/or operating transmission and/or distribution facilities in this state.

**“Electric distribution system”** means that portion of an electric system, that delivers electric energy from transformation points on the transmission system to points of connection at the customers’ premises.

**“Electric service”** means the supply, transmission, and distribution of electric energy as provided by an electric distribution company.

**“Forced outage”** means the removal from service availability of a generating unit, transmission line, or other facility for emergency reasons or a condition in which the equipment is unavailable due to unanticipated failure.<sup>2</sup>

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<sup>2</sup> North American Electric Reliability Council – “Glossary of Terms”, August 1996

**“Forced outage rate”** means the hours a generating unit, transmission line, or other facility is removed from service, divided by the sum of the hours it is removed from service plus the total number of hours the facility was connected to the electricity system expressed as a percent.<sup>3</sup>

Multiple momentary forced outages on the same transmission line in the span of a single minute shall be treated as a single forced outage with the duration of one minute. When the operation of a transmission circuit is restored following a forced outage and the transmission line remains operational for a period exceeding one minute or more, followed by another forced outage, then these should be counted as two forced outages. Multiple forced outages occurring as a result of a single event should be handled as multiple forced outages only if subsequent operation of the transmission line between events exceeds one minute. Otherwise they shall be considered one continuous forced outage.<sup>4</sup>

**“Interruption”** means the loss of electric service to one or more customers. It is the result of one or more component outages, depending on system configuration or other events. See “outage” and “major event.” The types of interruption include momentary event, sustained and scheduled.

**“Interruption, duration”** means the period (measured in minutes) from the initiation of an interruption of electric service to a customer until such service has been restored to that customer. An interruption may require step restoration tracking to provide reliable index calculations.

**“Interruption, momentary event”** means an interruption of electric service to one or more customers, of which the duration is less than or equal to 5 minutes. This definition includes all reclosing operations, which occur within five minutes of the first interruption. For example, if a recloser or breaker operates two, three, or four times and then holds within five minutes, the event shall be considered one momentary event interruption.

**“Interruption, scheduled”** means an interruption of electric service that results when one or more components are deliberately taken out of service at a selected time, usually for the purposes of preventative maintenance, repair or construction. Scheduled interruptions, where attempts have been made to notify customers in advance, shall not be included in the SAIFI, CAIDI, or Forced Outage Rate calculations.

**“Interruption, sustained”** means an interruption of electric service to one or more customers that is not classified as a momentary event interruption and which is longer than five minutes in duration.

**“Interrupting device”** means a device, capable of being reclosed, whose purpose includes interrupting fault currents, isolating faulted components, disconnecting loads and restoring service. These devices can be manual, automatic, or motor operated. Examples include

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<sup>3</sup> North American Electric Reliability Council – “Glossary of Terms”, August 1996

<sup>4</sup> Draft CAISO Transmission Control Agreement, Appendix C, ISO Maintenance Standards

transmission and distribution breakers, line reclosers, motor operated switches, fuses or other devices.

**“Major Event”** means an event consistent with the I.E.E.E.1366, Guide For Electric Power Distribution Reliability Indices standard as approved and as may change over time. For purposes of this regulation, changes shall be considered to be in effect beginning January 1 of the first calendar year after the changed standard is adopted by the I.E.E.E. Major event interruptions shall be excluded from the EDC’s SAIFI, CAIDI and Forced Outage Rate calculations for comparison to reliability benchmarks. Interruption data for major events shall be collected, and reported according to the reporting requirements outlined in Section K.

**“Mid Atlantic Area Council (‘MAAC’)**” means a regional council of the North American Electric Reliability Council (‘NERC’), or successor organization, that is responsible for Mid Atlantic operational policies and reliability planning standards applicable to PJM and local electric distribution company members.

**“North American Electric Reliability Council (‘NERC’)**” means the national organization responsible for operational policies and reliability planning standards applicable to national system operations and electric distribution companies, or their successor organizations.

**“Outage”** means the state of a component when it is not available to perform its intended function due to some event directly associated with that component. An outage may or may not cause an interruption of electric service to customers, depending on system configuration.

**“Outage management system (‘OMS’)**” means a software operating system that provides database information to effectively manage service interruptions and minimize customer outage times.

**“Pre-restructuring”** refers to the five-year time frame prior to Delaware’s adoption of 26 Del. C., Chapter 10, Electric Utility Restructuring Statute.

**“PJM Interconnection, L.L.C. (‘PJM’)**” means the independent system operator that is responsible for mid-Atlantic region wholesale energy markets and the interstate transmission of energy, or it’s successor organization.

**“Power quality”** means the characteristics of electric power received by the customer, with the exception of sustained interruptions and momentary event interruptions. Characteristics of electric power that detract from its quality include waveform irregularities and voltage variations—either prolonged or transient. Power quality problems shall include, but are not limited to, disturbances such as high or low voltage, voltage spikes or transients, flicker and voltage sags, surges and short-time overvoltages, as well as harmonics and noise.

**“Preventive maintenance”** means the planned maintenance, usually performed to preclude forced or unplanned outages, and which allows delivery facilities to continue functioning at an acceptable level of reliability.

**“Reliability”** means the degree of performance of the elements of the bulk electric system that results in electricity being delivered to customers within accepted standards and in the amount desired. Reliability may be measured by the frequency, duration, and magnitude of adverse effects on the electric supply. Electric system reliability can be addressed by considering two basic and functional aspects of the electric system – Adequacy and Security.

**Adequacy** - The ability of the electric system to supply the aggregate electrical demand and energy requirements of customers at all times, taking into account scheduled and reasonably expected unscheduled outages of system elements.

**Security** - The ability of the electric system to withstand sudden disturbances such as electric short circuits or unanticipated loss of system elements.<sup>5</sup>

As applied to distribution facilities, reliability is further described as the degree to which safe, proper and adequate electric service is supplied to customers without interruption.

**“Repair time”** is the elapsed time from the arrival of the service resource at the identified problem site to the correction of the customer’s original concern as tracked by the OMS.

**“Response time”** is the elapsed time from dispatch of service resource to the arrival of the service resource at the identified problem site as tracked by the OMS.

**“Step restoration”** means the restoration of service to blocks of customers in an area until the entire area or circuit is restored.

**“Sum of all Sustained Customer Interruption Durations”** means the summation of the restoration time (in minutes) for each event times the number of interrupted customers for each step restoration of each interruption event during the reporting period.

**“System Average Interruption Frequency Index (SAIFI)”** represents the average frequency of sustained interruptions per customer during the reporting period. SAIFI is defined as:

$$\text{SAIFI} = \frac{\text{Total Number of Sustained Customer Interruptions per Reporting Period}}{\text{Total Number of Customers Served per Reporting Period}}$$

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<sup>5</sup>NERC definition - NERC’s Reliability Assessment 2001–2010, dated October 16, 2001.



**“Total Number of Sustained Customer Interruptions”** means the sum of the number of interrupted customers for each interruption event during the reporting period. Customers who experienced multiple interruptions during the reporting period are counted for each interruption event the customer experienced during the reporting period.

**“Total Number of Customers Served”** means the number of customers provided with electric service by the distribution facility for which a reliability index is being calculated on the last day of the time period for which the reliability index is being calculated. This number should exclude all street lighting (dusk-to-dawn lighting, municipal street lighting, traffic lights) and sales to other electric utilities.

**"Transmission facilities"** means electric facilities located in Delaware and owned by a public utility that operate at voltages above 34,500 volts and that are used to transmit and deliver electricity to customers (including any customers taking electric service under interruptible rate schedules as of December 31, 1998) up through and including the point of physical connection with electric facilities owned by the customer.

#### C. Electric Service Reliability and Quality

- 1) Each EDC shall provide reliable electric service that is consistent with pre-restructuring service levels as identified in Section D. and complies with 26 Del. C., § 1002.
- 2) Each EDC shall install, operate, and maintain its delivery facilities in conformity with the requirements of the National Electrical Safety Code and the operating policies and standards of NERC, MAAC and PJM, or their successor organizations.
- 3) Each EDC shall have targeted objectives, programs and/or procedures and forecast load studies, designed to help maintain the acceptable reliability level for its delivery facilities and, where appropriate, to improve performance.
- 4) Each EDC, in accordance with Section I., shall submit to the Commission, on or before March 31 of each year, a Planning and Studies Report identifying its current year's annual objectives, planned actions and projects, programs, and forecast studies that serve to maintain reliability and quality of service at an acceptable reliability level.
- 5) Each EDC, in accordance with Section J., shall submit to the Commission, on or before April 30 of each year, a Performance Report that assesses the achievement of the previous year's objectives, planned actions, projects and programs, and assesses the relative accuracy of forecast studies and previous years performance measures with respect to benchmarks.

#### **D. Reliability and Quality Performance Benchmarks**

- 1) The measurement of reliability and quality performance shall be based on annual SAIFI, CAIDI and Forced Outage Rate measures for each EDC. SAIFI and CAIDI calculations shall include all Delaware customer outages, excluding major events, and shall be reported by its distribution, substation and transmission components. The Forced Outage Rate shall be based on system transmission circuit and power transformer performance, excluding major events and scheduled interruptions.
- 2) Each EDC shall maintain their electric service reliability and quality performance measures within the benchmark standard of this Section D., paragraph 3). SAIFI, CAIDI and Forced Outage Rate performance shall be measured each calendar year. Annual SAIFI and CAIDI performance equal to or better than the acceptable reliability level meets the standard of this regulation. Annual Forced Outage Rate performance shall be averaged with the prior two years performance for comparison to standard. Three-year average Forced Outage Rate performance equal to or better than the acceptable reliability level meets the standard of this regulation. When performance does not meet the acceptable reliability level, further review and analysis are required. The EDC may be subject to penalties as defined in Section M and subsequent corrective actions may be required.
- 3) For the EDCs, the interim electric service reliability and quality performance benchmarks are established as follows:
  - a) The system SAIFI benchmark standard, which is based on pre-restructuring levels of performance and adjusted to reflect 1.75 standard deviation of data variability and the transition to an OMS system shall be as follows:
    - i) Delaware Electric Cooperative SAIFI shall be 4.6 interruptions; and
    - ii) Conectiv SAIFI shall be 2.3 interruptions.
  - b) The system CAIDI benchmark, which is based on pre-restructuring levels of performance and adjusted to reflect 1.75 standard deviation of data variability and the transition to an OMS system shall be as follows:
    - i) Delaware Electric Cooperative CAIDI shall be 173 minutes; and
    - ii) Conectiv CAIDI shall be 141 minutes.
  - c) The Forced Outage Rate benchmark standard shall be one percent.
- 4) The electric service reliability and quality benchmarks, as defined in Section D., paragraph 3), are established as interim standards for 2003, 2004 and 2005, subject to further review. Each EDC shall track and report its annual performance and three-year average performance against benchmark standards in accordance with Section J.

- 5) Prior to 2006, or as requested by the Commission, the Commission Staff, in conjunction with all interested parties, shall review the current interim regulations, benchmark standards and actual EDC performance. Subsequent to the review, the Staff shall make recommendation for final regulations and benchmark standards to the Commission for consideration as final regulations.

#### **E. Reliability and Quality Performance Objectives**

- 1) Each EDC shall establish electric service reliability and quality performance objectives for the forthcoming year. Objectives shall include:
  - a. Anticipated performance measures designed to maintain reliable electric distribution service with a description of any planned actions to achieve target objectives;
  - b. Anticipated performance measures designed to maintain transmission circuits and power transformers with a description of any planned actions to achieve target objectives; and
  - c. Annual corrective and preventive maintenance program hours anticipated on Delaware transmission circuits, distribution circuits and substation equipment.
- 2) Performance objective measures shall be established to support the maintenance of electric reliability performance. Performance objectives shall be representative of expected performance, taking into consideration anticipated new construction projects, quality and maintenance programs, planned actions and any resource or time limitations.

#### **A. Power Quality Program**

- 1) Each EDC shall maintain a power quality program with clearly stated objectives and procedures designed to respond promptly to customer reports of power quality concerns.
- 2) Each EDC shall consider power quality concerns in the design, construction and maintenance of its transmission and distribution power delivery system components to mitigate, using reasonable measures, power quality disturbances that adversely affect customers' equipment.
- 3) Each EDC shall maintain records of customer power quality concerns and EDC response. These records shall be made available to the Commission Staff upon request with 30 days notice.

#### **G. Inspection and Maintenance Program**

- 1) Each EDC shall have an inspection and maintenance program designed to maintain delivery facilities performance at an acceptable reliability level. The program shall be based on industry codes, national electric industry practices, manufacturer's recommendations, sound engineering judgment and past experience.

Each EDC shall maintain records of inspection and maintenance activities. These records shall be made available to Commission Staff upon request with 30 days notice.

#### **H. Delivery Facility Studies**

- 1) Each EDC shall perform system load studies to identify and examine potential distribution circuit overloads, distribution substation and distribution substation supply circuit single contingencies and all transmission system single and double contingencies as specified by NERC, MAAC and PJM requirements. Double contingency analysis should include supply service contingencies that may cause overloads or outages on the EDC's system. The EDC shall identify all projects or corrective actions that are planned to mitigate reliability loading issues identified in the study.
- 2) Delivery facility planning studies will be performed annually under a 50/50 weather normalized peak load condition with single and/or double contingencies, as specified by NERC, MAAC and PJM planning requirements, to identify required projects or corrective actions. A supplementary sensitivity study shall be performed under a 90/10 weather normalized peak load to identify projects or corrective actions that may be needed at increased 90/10 loading levels. All increased loads above normal 50/50 study parameters shall assume a power factor of .85. All MW and MVAR bus loads in the studies will be adjusted by a uniform percentage to achieve the loading corresponding to the 90/10 forecast. For each study resulting in a thermal overload or an out-of-range voltage level, the study shall be performed again after the implementation of Active Load Management (ALM), system switching or reconfiguration.
- 3) Each EDC shall perform the electric delivery facility system planning studies as described herein in the fall of each year (year a) for the upcoming summer period (year b) and for the summer period two years later (year c). The planning studies will include all delivery facility enhancements planned to be in-service during the applicable summer peak and shall identify those delivery facilities that are anticipated to be overloaded during the peak demand period.

#### **I. Planning and Studies Report**

- 1) By March 31 of each year, each EDC shall submit a report to the Commission identifying current reliability objectives, planned actions and projects, programs and load studies designed to maintain the electric service reliability and quality of the delivery facilities.

2) The report shall include the following information:

- a. Objective targets in support of reliable electric service and descriptions of planned actions to achieve the objectives;
- b. Description and estimated cost of capital projects planned to mitigate loading or contingent conditions;
- c. The EDC's power quality program and any amendments as required in Section F;
- d. The EDC's inspection and maintenance program, any amendments as required in Section and any specific actions aimed at reducing outage causes or Forced Outage Rates;
- e. Delivery facility study reports, as described in Section H., to include at a minimum the information for both year b and year c as specified in Section H, paragraph 3), with specific findings as follows:
  - i) For each thermal overload detected by both the 50/50 and 90/10 study, provide the overloaded system element, the normal and emergency ratings of the overloaded element, the percentage loading on the overloaded element and the percent overload on the element (both before and after the implementation of ALM or other corrective action), and a description of the delivery facility enhancement anticipated to eliminate the thermal overload (including the cost of the enhancement); and
  - ii) For each out-of-range voltage level detected by both the 50/50 and 90/10 study, provide the system element that experiences the out-of-range voltage, the out-of-range voltage level (both before and after implementation of ALM or other corrective action), a description of the delivery enhancement anticipated to eliminate the out-of-range voltage (including the cost of the enhancement), a listing of the circuits that would experience an outage due to automatic load-shedding as a result of the out-of-range voltage;
- f. Summaries of all recent delivery facility planning studies and network capability studies (including CETO and CETL results) performed for any delivery facilities owned by the utility; and
- g. Summaries of any changes to reliability related requirements, standards and procedures at PJM, MAAC, NERC or the EDC.

## **J. Annual Performance Report**

- 1) By April 30 of each year, each EDC shall submit an annual Performance Report, summarizing the actual electric service reliability results. The report shall include the EDC's average three-year performance results, actual year-end performance measure results and an assessment of the results/effectiveness of the reliability objectives, planned actions and projects, programs, and load studies in achieving an acceptable reliability level.

- 2) Delivery facilities year-end performance measures, as established in section D., paragraph 1), shall be reported as follows:
  - a. SAIFI, and CAIDI measures:
    - i) Current year and three-year average reflecting Delaware performance, classified by distribution, substation and transmission components; and
    - ii) Current year for each feeder circuit providing service to Delaware customers, regardless of state origin.
  - b. Forced Outage Rate measures:
    - i) Current year and three-year average for the EDC's DPL Zone transmission system, classified by circuits and power transformers; and
    - ii) Current year for each transmission line and power transformer that provides energy to Delaware customers, regardless of state location.
- 3) The Performance Report shall identify 2% of distribution feeders or 10 feeders, whichever is more, serving at least one Delaware customer, that are identified by the utility as having the poorest reliability. The EDC shall identify the method used to determine the feeders with poorest reliability and shall indicate any planned corrective actions to improve feeder performance and target dates for completion or explain why no action is required. The EDC shall ensure that feeders, identified as having the poorest reliability, shall not appear in any three consecutive Performance Reports without initiated corrective action.
  - 4) For 2003, 2004 and 2005, the performance report shall include annual and 1999 base line information that provides the Commission with the ability to assess the EDC's efforts to maintain reliable electric service to all customers in the state of Delaware. Such reporting shall include the following items:
    - a. Current year and 1999 base year expenditures, labor resource hours, and activity measures for each capital and/or maintenance program designed to support the maintenance of reliable electric service, to include:
      - i. Transmission and distribution tree trimming;
      - ii. Transmission and distribution preventive maintenance;
      - iii. Transmission and distribution corrective maintenance;
      - iv. Transmission and distribution capital infrastructure improvements; and
      - v. Process, practice or material improvements.
    - b. Current year OMS and 1999 base year data to include:
      - i. Number of outages by outage type;
      - ii. Number of outages by outage cause;
      - iii. Total number of customers at year end;
      - iv. Total number of customers that experienced an outage; and
      - v. Total customer minutes of outage time.

- c. Current year and 1999 base year customer satisfaction or other measures the EDC believes are indicative of reliability performance.
  - d. Current year and three-year constrained hours of operation within PJM's DPL Zone by cause.
- 5) The Performance Report shall include a summary of each major event for which data was excluded, and an assessment of the measurable impact on reported performance measures.
- 6) In the event that an EDC's reliability performance measure does not meet an acceptable liability level for the calendar year, the Performance Report shall include the following:
- a. For not meeting SAIFI, an analysis of the customer service interruption causes for all delivery facilities that significantly contributed to not meeting the benchmark;
  - b. For not meeting CAIDI, an analysis of the duration of service interruptions for all delivery facilities by dispatch, response and repair times that significantly contributed to not meeting the benchmark;
  - c. For not meeting Forced Outage Rate, an analysis of significant outages by cause;
  - d. A description of any corrective actions that are planned by the EDC and the target dates by which the corrective action shall be completed; and
  - e. If no corrective actions are planned, an explanation shall be provided.
- 7) The Performance Report shall include copies of current procedures identifying methods the EDC uses to ensure the electric supplier delivery of energy to the EDC at locations and in amounts which are adequate to meet each electric supplier's obligation to its customers.
- 8) The Performance Report shall include certification by an officer of the EDC of the data and analysis and that necessary projects, maintenance programs and other actions are being performed and adequately funded by the Company as addressed in its annual plans.

**K. Major Event Report**

- 1) Each EDC shall notify the Commission of major events as soon as practical, but not more than 36 hours after the onset of a major event.
- 2) The EDC shall, within 15 business days after the end of a major event, submit a written report to the Commission, which shall include the following:
  - a. The date and time when the EDC's major event control center opened and closed;
  - b. The total number of customers out-of-service over the course of the major event;
  - c. The date and time when the last customer affected by a major event was restored;
  - d. The total number of trouble locations by facility classification;
  - e. The time at which the mutual aid and non-company contractor crews were requested,

- arrived for duty and were released, and the mutual aid and non-contractor response(s) to the request(s) for assistance; and
- f. A timeline profile of the number of company line crews, mutual aid crews, non-company contractor line and tree crews working on restoration activities during the duration of the major event.

#### **L. Prompt Restoration of Outages**

- 1) EDCs shall begin the restoration of service to an affected service area within two hours of notification by two or more customers of any loss of electric service. In situations where it is not practical to respond within two hours to a reported interruption (safety reasons, inaccessibility, multiple simultaneous interruptions, storms or other system emergencies), the EDC shall respond as soon as the situation permits.
- 2) Each EDC shall strive to restore service as quickly and as safely as possible at all times; however, the requirement to begin restoration within two hours of notification shall not apply to EDCs during major events.
- 3) Each EDC shall monitor dispatch, response and repair times for customer outages. In the event that average annual dispatch, response or repair performance times exceed the EDC's expected levels for the calendar year, the EDC shall include the following in its annual performance report.
  - a. An analysis of the factors which caused the unexpected performance; and
  - b. A description of any corrective actions planned by the EDC to meet expected performance levels.
- 4) Each EDC shall have outage response procedures that place the highest priority on responding to emergency situations for which prompt restoration is essential to public safety. These procedures should include recognition of priority requests that may come from police, fire, rescue, authorized emergency service providers or public facility operators.

#### **M. Penalties and Other Remedies**

- 1) Private or investor owned utilities, operating in Delaware under the regulations of the Commission, are subject to penalties and other remedial actions for failure to comply with Commission regulations requiring informational reports and performance at an acceptable reliability level.
  - a. Pursuant to 26 Del.C., §§ 205(a) and 217, penalties for violations of report submission requirements set out in Sections I., J. and K. of these regulations or penalties for violations of benchmark standards in Section D of these regulations, may be assessed as follows:



- i. For failure to submit complete required reports on the due date set by rule, the EDC may be liable for penalties for each day beyond the due date that the report is not submitted, as provided in the Delaware statute, provided; however, that upon timely written request to the Commission, demonstrating the need for an extension of time, the due date for submitting required reports may be extended by the Commission for good cause shown.
    - ii. For failure to have objectives, programs and plans designed to maintain reliable electric service or for the willful misrepresentation of fact and/or intentional inaccuracies in any submitted report or for violation of any performance standard requirement of these regulations, an EDC may be liable for penalties or mandatory corrective actions as allowed by the Delaware statute, with the following limitation. Penalties for violation of any performance standard may be applied only after the Commission has established final regulations or if the Commission determines that the EDC willfully and intentionally took actions that resulted in failure to meet a standard during the interim period.
  - b. The Commission shall be responsible for assessing any penalty under this section, consistent with Delaware law. In determining the amount of the penalty, or the amount agreed upon in compromise, the Commission may consider aggravating and mitigating circumstances including: the nature and gravity of the violation; the degree of the EDC's culpability and history of prior violations; and any good faith effort on the part of the EDC in attempting to achieve compliance. Nothing in this section relieves any private or investor owned utility from compliance or penalties, that may be assessed due to non-compliance with any requirement set forth under any other regulation, statute or order.
- 2) Cooperatives operating in Delaware under the regulations of the Commission are subject to remedial action penalties for failure to comply with Commission regulations requiring informational reports and performance at an acceptable reliability level. Due to the particular ownership structure, cooperatives are exempt from the financial penalties of this section, unless otherwise determined by the Commission or as otherwise stated herein. Nothing in these regulations relieves any cooperative from compliance or penalties, that may be assessed due to non-compliance with any requirement set forth under any other regulation, statute or order.
- a. Remedial action penalties for violations of report submission requirements set out in Sections I., J. and K. of these regulations or for violations of performance standards in Section D of these regulations, may be assessed as follows:
    - i) For failure to submit required reports on the due date set by rule, the cooperative shall notify their customers of the delinquency, the reason for such delinquency, and the time frame in which the cooperative will comply with all reporting requirements; however, that upon timely written request to the Commission demonstrating the need for an extension of time, the due date for submitting required reports may be extended by the Commission for good cause shown.
    - ii) For failure to have objectives, programs and plans designed to maintain reliable electric service or for the willful misrepresentation of fact and/or intentional inaccuracies in any submitted report or for violation of any performance standard

requirement of these regulations, a cooperative may be liable for mandatory corrective actions and customer notifications as directed by the Commission.

- b. Cooperatives shall provide all reports by required due dates and shall correct electric service reliability and quality deficiencies expeditiously in order to maintain an acceptable reliability level. The Commission may impose financial penalties for repeated failures to meet regulation requirements, consistent with Delaware statute.
- 3) Upon failure of any EDC to meet performance benchmark standards, the EDC shall report monthly, or over such other period of time that the Commission shall establish by order, the latest performance indices, until such time as performance meets the acceptable reliability level.
- 4) Each EDC not meeting performance benchmark standards as required by Section D., shall inform its customers, in writing, of plans to improve electric service reliability and quality in writing by July 1 of the year following any year in which its performance does not meet an acceptable reliability level.
- 5) Each violation of any reporting rule or performance standard of these regulations shall constitute a single, separate and distinct violation for that particular day. Each day during which a violation continues shall constitute an additional, separate and distinct violation. Provided, however, that a violation of a performance measure shall not be deemed to be a violation per customer, whether affected or otherwise, but shall constitute a single Delaware-wide violation for the day.
- 6) Penalty assessments are payable as provided by Delaware statute.

**N. Outage Management System (OMS)**

- 1) Each EDC shall implement an OMS as described in this section by January 1, 2003.
- 2) The OMS, at a minimum, shall consist of an outage assessment software program, integrated with a geographic information system that permits an EDC to effectively manage outage events and restore customer service in a timely manner.
- 3) The OMS should permit the EDC to:
  - a. Group customers who are out of service to the most probable interrupting device that operated;
  - b. Associate customers with distribution facilities;
  - c. Generate street maps indicating EDC outage locations;
  - d. Improve the management of resources during a storm;
  - e. Improve the accuracy of identifying the number of customers without electric service;
  - f. Improve the ability to estimate expected restoration times;
  - g. Accurately identify the number and when customers were restored; and
  - h. Effectively support the dispatch of crews and/or service personnel.

## **O. Reporting Specifications and Implementation**

- 1) Planning and Studies Reports, Performance Reports and Major Event Reports provided under these regulations are subject to annual review and audit by the Commission. The EDC must maintain sufficient records to permit a review and confirmation of material contained in all required reports.
- 2) Reports shall be submitted as an original and 4 copies, except that in lieu of paper reporting, information may be submitted electronically to the Secretary, Delaware Public Service Commission, with certification of authenticity by an officer of the corporation.
- 3) Each EDC may request that information, required under these regulations, be classified as confidential, proprietary and/or privileged material. The EDC must attest that such information is not subject to inspection by the public or other parties without execution of an appropriate proprietary agreement. Each EDC requesting such treatment of information is also obligated to file an additional copy of the information, excluding the confidential or proprietary information. The Commission, in accordance with Rule 11, Rules of Practice and Procedure of the Delaware Public Service Commission, effective May 10, 1999, will treat such information as “confidential, not for public release” upon receipt of a properly filed request. Any dispute over the confidential treatment of information shall be resolved by the Commission, designated Presiding Officer or Hearing Examiner.
- 4) These regulations are placed in effect as interim regulations effective 2003 through 2005, or until such time as the Commission adopts final regulations.

**E X H I B I T B**

**BEFORE THE PUBLIC SERVICE COMMISSION**

**OF THE STATE OF DELAWARE**

IN THE MATTER OF THE CONSIDERATION       )  
OF RULES, STANDARDS, AND INDICES       )  
TO ENSURE RELIABLE ELECTRICAL       ) PSC REGULATION DOCKET NO. 50  
SERVICE BY ELECTRIC DISTRIBUTION       )  
COMPANIES (OPENED SEPTEMBER 26, 2000) )

**SOLICITATION OF COMMENTS AND NOTICE OF PUBLIC HEARING  
ON PROPOSED "ELECTRIC SERVICE RELIABILITY AND QUALITY SERVICE"  
REGULATIONS**

The Public Service Commission ("the Commission") initiated this proceeding to consider the need for, and the scope of, rules and regulations to ensure that Delaware consumers continue to receive reliable electrical service in their homes and businesses.

The Commission initially proposed in PSC Order No. 5704 (April 24, 2001) to adopt particular "Electric Service Reliability and Quality Standards." Those proposed regulations were previously published in 4 DE Reg. 1929 (June 1, 2001).

As a result of the comments and evidence received since the publication of those originally proposed regulations, the Commission, in PSC Order No. 6217 (July 22, 2003), decided to now propose for adoption revised "Electric Service Reliability and Quality Standards." These revised proposed regulations supersede those proposed earlier in PSC Order No. 5704.

In summary, the revised proposed "Electric Service Reliability and Quality Standards" adopt additional reliability requirements for electric utilities and electric distribution companies subject to the

jurisdiction of the Commission based on a uniform methodology for measuring reliability. The revised proposed regulations include requirements for data maintenance, record retention, and service interruption information, and establish interim standards to measure the reliability of the service provided. These revised proposed regulations also set forth requirements for the implementation and scope of outage management systems, prescribe record reporting parameters, and require utilities and electric distribution companies to maintain reliable service to their customers in an efficient, sufficient, and adequate manner.

You may review the proposed revised regulations in the September, 2003 edition of the Delaware Register of Regulations. You may also review the proposed regulations at the Commission's Internet website located at "www.state.de.us/delpsc." Copies of the proposed revised regulations can be obtained from the Commission during normal business hours at its Dover office at the address set out below. The fee for such copies is \$0.25 per page.

The Commission has the authority to adopt the proposed regulations under 26 Del. C. §§ 209(a) and 1002(a)(1).

The Commission now solicits from any person or entity written comments, suggestions, and compilations of data, briefs, or other written materials concerning the proposed regulations. Ten (10) copies of such materials shall be filed with the Commission at the following address:

Public Service Commission  
Attention: Regulation Dckt. No. 50  
861 Silver Lake Boulevard  
Cannon Building, Suite 100  
Dover, DE 19904.

All such materials must be filed with the Commission on or before October 3, 2003. All persons or entities currently involved in the proceedings do not need to file comments and all previously filed evidence will be considered. Direct notice of further proceedings will only be sent to current participants, persons or entities who now file comments, and non-commenting persons or entities who file a notice of an intent to participate.

The Commission will also hold a public hearing on the proposed regulations beginning 10:00 AM on September 22, 2003. Such hearing will be held at the Commission's office in Dover at the address set forth above.

All materials submitted in this proceeding are available for inspection and copying during normal business hours at the Commission's Dover office. The fee for copying is \$0.25 per page.

If you are disabled and wish to participate in, or review, these proceedings, you should contact the Commission to discuss any auxiliary aids or services you might need. You may contact the Commission in writing, by telephone (including text telephone), by Internet e-mail, or in person. If you have questions about this matter, you can call the Commission by using its toll-free telephone number (in Delaware): 1-800-282-8574. You may also call the Commission at (302) 739-4247 or by Text Telephone at (302) 739-4333.

You can also send your inquiries by Internet e-mail addressed to  
robert.howatt@state.de.us.